

In the claims:

Please cancel claims 10, 22, and 23.

Claims 4-7, 13-16, 18-20, and 24-31 have been withdrawn by the Examiner pursuant to a restriction requirement.

Please amend claims 1, 12, 17, and 21 as follows:

1. (Currently Amended) A coaxial probe for high frequency testing of planar electric transmission line structures, said probe comprising:

a probe mount comprising a coaxial connector connected to a coaxial cable assembly;

a center electrode mounted on said probe mount and electrically connected to a center conductor of said coaxial connector, wherein said center conductor may be placed in contact with a first point on a planar electric transmission line structure to be tested;

~~an~~ non-circular outer electrode mounted on said probe mount and electrically connected to ground, said outer electrode comprising a protrusion to be placed in contact with a second point on the planar electric transmission line structure to be tested wherein a pitch of said protrusion can be varied by affixing said protrusion on said outer electrode to match a pitch between the first point and the second point without affecting a characteristic impedance of the coaxial cable assembly, the coaxial connector and said probe mount; and

a dielectric of non-uniform thickness between said center and said outer electrodes, wherein said coaxial probe is configured to match said characteristic impedance.

2. (Original) The probe of claim 1 wherein said probe mount comprises a conductive plate.
3. (Original) The probe of claim 2 wherein said dielectric comprises air.
4. (Withdrawn) The probe of claim 1 wherein said probe mount comprises a printed circuit board.
5. (Withdrawn) The probe of claim 4 wherein said dielectric comprises said printed circuit board and air.
6. (Withdrawn) The probe of claim 4 wherein said printed circuit board comprises one or more stubs for tuning electrical characteristics of said probe.
7. (Withdrawn) The probe of claim 6 wherein said printed circuit board additionally comprises one or more shorting bars located along said one or more stubs.
8. (Original) The probe of claim 1 wherein said outer electrode comprises a conductive tube having said non-circular cross-section.
9. (Original) The probe of claim 8 wherein said outer electrode has a cross-section selected from the group consisting of oval, square, rectangular, hexagonal, L-shaped, and U-shaped.
10. (Canceled)

11. (Original) The probe of claim 1 wherein a pitch between said center electrode and said protrusion is fixed.

12. (Currently Amended) The probe of claim 1 wherein said protrusion comprises a ~~60-degree~~ tapered point.

13. (Withdrawn) The probe of claim 1 wherein said outer electrode is axially spring-loaded to provide compliance.

14. (Withdrawn) The probe of claim 1 wherein said connector is spring-loaded to provide compliance.

15. (Withdrawn) The probe of claim 14 wherein said connector is spring-loaded with a short-throw conductive spring.

16. (Original) The probe of claim 1 wherein said probe is handheld during testing of the planar electric transmission line structure.

17. (Currently Amended) The probe of claim 1 wherein said characteristic impedance characteristics of said probe substantially matches those of a coaxial cable attached to said connector characteristic impedance.

18. (Withdrawn) The probe of claim 1 wherein lumped series resistance is attached to said outer electrode, whereby speed of said probe is increased.

19. (Withdrawn) The probe of claim 18 wherein said probe comprises a resistor.

20. (Withdrawn) A differential coaxial probe assembly comprising two probes according to claim 1.

21. (Currently Amended) A coaxial probe for high frequency testing of planar electric transmission line structures, said probe comprising:

a probe mount connected to a coaxial cable assembly;

a center electrode mounted on said probe mount, wherein said a center conductor may be placed in contact with a first point on a planar electric transmission line structure to be tested; and

an outer electrode comprising a protrusion, wherein a pitch of said protrusion can be varied by affixing said protrusion on said outer electrode to match a pitch between the first point and a second point without affecting a characteristic impedance of the coaxial cable assembly, the coaxial connector and said probe mount, attached on a of non-circular cross-section casing mounted on said probe mount, wherein said coaxial probe is configured to match said characteristic impedance.

22. (Canceled)

23. (Canceled)

24. (Withdrawn and Currently Amended) A differential coaxial probe assembly comprising two probes according to claim 21 with ~~zero or~~ at least one one protrusion on a downward facing surface of each said outer electrode.

25. (Withdrawn) A differential coaxial probe assembly comprising two probes according to claim 21 with fixed relative positions.

26. (Withdrawn) A differential coaxial probe assembly comprising two probes according to claim 21 with manually variable relative positions.

27. (Withdrawn) A differential coaxial probe assembly comprising two probes according to claim 21 with automatically variable relative positions.

28. (Withdrawn) A coupled line differential probe assembly comprising:  
a probe mount;  
two center electrodes mounted on said probe mount, wherein both of said center conductors may simultaneously be placed in contact with first and second points on a planar electric transmission line structure to be tested; and  
an outer electrode of non-circular cross-section mounted on said probe mount, said outer electrode comprising zero, one or two protrusions to be placed in contact with additional points on the planar electric transmission line structure to be tested.

29. (Withdrawn) The probe of claim 28 wherein said protrusions may be placed at any point on a downward-facing surface of said outer electrode without substantially altering impedance characteristics of said probe.

30. (Withdrawn) The probe of claim 28 wherein said outer electrode comprises one protrusion to be placed in contact with a third point on the planar electric transmission line structure to be tested.

31. (Withdrawn) The probe of claim 28 wherein said outer electrode comprises zero protrusions, where a common ground is not provided between said outer electrode and the planar electric transmission line structure to be tested.

Please add the following claims:

32. (Currently Added) The probe of claim 1 wherein said outer electrode comprises an axially spring loaded conductor.

33. (Currently Added) The probe of claim 1 wherein said coaxial connector comprises a resilient coaxial connector.

34. (Currently Added) The probe of claim 21 wherein said outer electrode comprises an axially spring loaded conductor.

35. (Currently Added) The probe of claim 21 wherein said coaxial connector comprises a resilient coaxial connector.

Respectfully submitted:



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